

ABSTRACT OF THE DISCLOSURE

A system and method for managing access to a satellite-based transponder by a plurality of aircraft each having a mobile radio frequency (RF) system. The system employs a ground-based, central control system for managing access to the satellite-based transponder so that the aggregate power spectral density (PSD) of the RF signals of all the mobile systems does not exceed, at any time, limits established by regulatory agencies to prevent interference between satellite systems. This is accomplished by a dual control loop arrangement for monitoring the signal-to-noise ratio (E_b/N_o) of the RF signal transmitted by the satellite-based transponder. A ground-based control loop is used whereby a ground-based central controller monitors the E_b/N_o and transmits commands to the aircraft (via the satellite transponder) to maintain the E_b/N_o of the transmitted signal within a predetermined range. A fast scan angle compensation is used by the mobile system of the aircraft to implement another control loop to further adjust the transmit power. This control loop maintains the E_b/N_o of the signal transmitted to the satellite-based transponder at the commanded level inbetween updates from the ground-based central controller.